

SEATING UNIT INCLUDING MODULAR STANCHION

Background and Summary

[0001] The present invention relates to seating units and, more particularly, to seating units including modular stanchions.

[0002] Seating systems for educational, amusement, performing arts, and sporting events typically have various drawbacks. These drawbacks often include the need for large, one piece stanchion castings or permanent welded steel stanchions each usable in only a limited number of applications. For different applications, different stanchions must be used, necessitating maintenance of a large inventory of parts. Moreover, the inventory of parts is typically of large parts.

[0003] According to an embodiment of the present invention, a plurality of parts are adapted to interlock by means of unique shaped male to female connections in order to achieve multiple floor or riser mounting variations as well as right hand, left hand, and intermediate stanchion configurations. A feature of an embodiment of the present invention is the use of modular components. Additionally, a feature of an embodiment of the invention is the ability of components of the stanchion to be interlocked and securely connected by means of a single bolt. Features such as these are significant in that the stanchion can be produced by manufacturing smaller common components and interlocking and connecting them together in different configurations to produce a variety of stanchion types.

[0004] Embodiments of the present invention permit resolution of several problems or limitations of existing chair stanchions. Problems overcome by and benefits of embodiments of the present invention include: elimination of the need for dedicated one piece stanchion castings or permanent welded steel stanchions by using a plurality of smaller components, which can be assembled together in different configurations to produce a variety of different stanchions; easy conversion between right hand and left hand stanchions in the field; reduction of the number of components and space requirements for repair or replacement parts typically kept in inventory for performing maintenance on stanchions by using common components that can be easily disassembled , replaced, and re-assembled by means of a single bolted connection; flexible design permits easy conversion of stanchions to different slopes or mounting configurations and does not require complete replacement of the stanchion.

[0005] According to one aspect of the present invention, a seating system comprises one or more seating units. Each seating unit comprises a seat portion, and left and right stanchions attached to the seat portion on left and right sides of the seat portion. Each stanchion includes a bottom member having a first end adapted to be secured to a surface and a second end, and a second member having a first end adapted to be secured to the second end of the bottom member at any one of a plurality of different angular relationships.

[0006] According to another aspect of the present invention, a family of different seating systems is provided, each seating system of the family of different seating

systems comprising one or more seating units. Each seating unit comprises a seat portion and left and right stanchions attached to the seat portion on left and right sides of the seat portion. Each stanchion includes a bottom member having a first end adapted to be secured to a surface and a second end, and a second member having a first end adapted to be secured to the second end of the bottom member at any one of a plurality of different angular relationships. For each seating system of the family of different seating systems, the first end of the bottom member is different from the first end of the bottom member of another seating system of the family of different seating systems.

Brief Description of the Drawings

[0007] The features and advantages of the present invention are well understood by reading the following detailed description in conjunction with the drawings in which like numerals indicate similar elements and in which:

[0008] FIG. 1 is a perspective view of a seating system with a modular stanchion according to an embodiment of the present invention;

[0009] FIGS. 2A-2C are side views of embodiments of modular stanchions according to the present invention; and

[0010] FIG. 3 is an exploded perspective view of a modular stanchion according to an embodiment of the present invention.

Detailed Description

[0011] A seating system 21 according to an embodiment of the present invention is shown in FIG. 1. The seating system 21 includes one or more seating units 23, each seating unit including a seat portion 25 and a left and right stanchion or arm portion 27 and 29 on opposite sides of the seat portion (right and left designations are, for purposes of the present invention, determined from the perspective of one looking at the front of the seat, not one seated in the seat). Each arm portion 27 and 29 preferably includes a lower stanchion 31 and an upper stanchion 33a or 33b fixed to the lower stanchion. The lower stanchion 31 is ordinarily secured to the floor, wall, or some other surface. The seat portion 25 is preferably pivotably secured to the arm portions 27 and 29 and movable between a substantially horizontal use position and a substantially vertical storage position. A suitable seat portion 25 is disclosed in copending U.S. Provisional Patent Application No. _____ (Attorney Docket No. 033625-004), entitled "Seating Unit Including Spring-Assisted Gravity-Fold Seat Mechanism", Inventor Mike Nelson, filed together herewith, which is incorporated by reference. A seating unit 23 ordinarily also includes a back assembly 34 attached to the arm portions 27 and 29. A back assembly suitable for use in connection with the present invention is disclosed in U.S. Provisional Patent Application No. _____ (Attorney Docket No. 033625-008), entitled "Seating Unit Including Back Assembly", inventor G. Edward Huff III, filed together herewith, which is incorporated by reference. The upper stanchion 33a may be identical to the upper stanchion 33b or may be adapted

for provision of, for example, a tablet arm such as is disclosed in copending U.S. Provisional Patent Application No. _____ (Attorney Docket No. 033625-002), entitled, "Seating Unit Including Foldable Tablet Arm", inventor Michael L. Leighton, filed together herewith and which is incorporated by reference, or such as is disclosed in copending U.S. Provisional Patent Application No. _____ (Attorney Docket No. 033625-003), entitled, "Seating Unit Including Foldable Tablet Arm", inventor Brian R. McLaughlin, filed together herewith and which is incorporated by reference. In addition, both upper stanchions may be adapted for provision of, for example, a tablet arm. For purposes of discussion, however, the present invention will be described in terms of a stanchion 29 with an upper stanchion that has no tablet arm, it being understood that the description is also applicable to stanchions with tablet arms, except as otherwise noted.

[0012] As seen in FIGS. 2A-2B, for each stanchion 29, the lower or bottom member 31 has a first end 35 adapted to be secured to a surface S such as a floor or a wall and a second end 37. The upper or second member 33b has a first end 39 adapted to be secured to the second end 37 of the bottom member 31 at any one of a plurality of different angular relationships. The second end 37 of the bottom member 31 includes a first hub 41 and the first end 39 of the second member 33b includes a second hub 43.

[0013] As seen in FIG. 3, preferably, the first hub 41 has one of protrusions 45 and the second hub 43 has recesses 47 adapted to mate with the protrusions on the first hub at different relative angular relationships between the first hub and the

second hub such that the bottom member 31 and the second member 33b can be secured at the different angular relationships. Of course, protrusions 45 or protrusions and recesses may be provided on the second hub 43 for mating with recesses 47 or recesses and protrusions on the first hub 41, or some other suitable arrangement for permitting indexing of the first and second hubs at different angular relationships may be provided, such as holes in the hubs for receiving pins.

[0014] The bottom member 31 and the second member 33b are preferably secured relative to each other by a single fastener 49 such as a bolt extending through the first hub 41 and the second hub 43. In addition, a boss 51 is preferably secured relative to the hubs 41 and 43 by the fastener 49. The boss 51 is preferably a part adapted for connecting the seat portion 25 to the stanchions 27 and 29. Bosses 51 may be provided on opposite sides of the hubs 41 and 43 for connecting seat portions on opposite sides of the hub where the seating system 21 comprises a plurality of adjacent seating units 23. Alternatively, a cover 53 (shown in phantom in FIG. 3) may be provided on one side of the hubs 41 and 43. The bosses 51 are preferably non-rotatable relative to the hubs 41 and 43 and may be provided with surfaces having male and/or female portions for mating with corresponding surfaces on the hubs to prevent rotation.

[0015] FIG. 3 shows an embodiment wherein the same bottom member 31 and second member 33b used to form a left stanchion 27 can be used to form a right stanchion 29 simply by switching the positions of items 51 and 53. Preferably, the

bottom member 31 and the second member 33b of each stanchion are identical. If desired or necessary, the first hub 41 on the bottom member 31 may be provided with left and right surfaces for mating with a surface on the hub 43 of the second member 33b so that a left or a right stanchion can be formed by attaching the second member to either the right or left side of the bottom member. Similarly, while also not required, the second hub 43 can be provided with left and right surfaces for mating with a surface on the hub 41 of the bottom member 31 so that a left or a right stanchion can be formed by attaching the bottom member to either the right or left side of the second member, or both the hubs 41 and 43 can be provided with left and right surfaces for mating with either left and right surfaces on the other hub.

[0016] As seen in FIGS. 2A-2C, the bottom member 31 is preferably adapted to be secured at least at one of a plurality of angular positions between 90° and 180° relative to the second member 33b so that a surface 55 of the foot 57 at the first end 35 of the bottom member is flush against the surface S, regardless whether the surface is horizontal, sloped, or vertical.

[0017] An armrest or an bracket 59 for securing an armrest is preferably attached at the second end 61 of the second member 33b. The armrest or bracket 59 may be pivotable between and adapted to be secured in one of a plurality of positions.

[0018] The seating systems 21 according to the present invention are preferably members of a family of different seating systems that differ from one another in various respects but that have many interchangeable components. For example,

members of the family may use the same seat portion 25, wing 34, and second member 33b, but have different bottom members 31. As seen in FIGS. 2A-2C, the foot 53 may differ in the bottom member of one seating system another seating system of the family of different seating systems by, for example, defining a different angle with the rest of the bottom member 31.

[0019] Components of the modular stanchion according to the present invention can be made of any suitable material. For light weight and good structural integrity, it is presently contemplated that structural components such as the bottom member 31, the second member 33b, and the boss 51 will be formed of cast aluminum, and components having more of a decorative function such as the cover 53 will be formed of metal or plastic.

[0020] While this invention has been illustrated and described in accordance with a preferred embodiment, it is recognized that variations and changes may be made therein without departing from the invention as set forth in the claims.